

CLAIMS

1.(Amended) A method for making soft magnetic material comprising:

a first heat treatment step applying a temperature of at least 400 deg C and less than 900 deg C in hydrogen or inert gas to metal magnetic particles (10);

a step for forming a plurality of compound magnetic particles (30) in which an insulation film (20) surrounds said metal magnetic particle (10); and

a step for forming a shaped body by compacting said plurality of compound magnetic particles (30).

2. A method for making soft magnetic material according to claim 1 wherein said first heat treatment step includes a step for heat treating said metal magnetic particles (10) at a temperature of at least 700 deg C and less than 900 deg C.

3. A method for making soft magnetic material according to claim 1 further comprising a second heat treatment step applying a temperature of at least 200 deg C and no more than a thermal decomposition temperature of said insulation film (20) to said shaped body.

4. A method for making soft magnetic material according to claim 1 wherein said step for forming said shaped body includes a step for forming said shaped body in which said plurality of compound magnetic particles (30) is bonded by an organic matter (40).

5. A method for making soft magnetic material according to claim 1 wherein

said first heat treatment step includes a step for setting a coercivity of said metal magnetic particles (10) to be no more than 2.0×10^2 A/m.

6. A method for making soft magnetic material according to claim 1 wherein said first heat treatment step includes a step for setting a coercivity of said metal magnetic particles (10) to be no more than 1.2×10^2 A/m.

7. A method for making soft magnetic material according to claim 1 wherein said first heat treatment step includes a step for heat treating said metal magnetic particle (10) having a particle diameter distribution that is essentially solely in a range of at least 38 microns and less than 355 microns.

8. A method for making soft magnetic material according to claim 1 wherein said first heat treatment step includes a step for heat treating said metal magnetic particle (10) having a particle diameter distribution that is essentially solely in a range of at least 75 microns and less than 355 microns.

9. A dust core made according to a method for making soft magnetic material according to claim 1 wherein coercivity is no more than 1.2×10^2 A/m.

10. A soft magnetic material comprising a plurality of metal magnetic particles (10); wherein said metal magnetic particles (10) have a coercivity of no more than 2.0×10^2 A/m and said metal magnetic particles (10) have a particle diameter distribution that is essentially solely in a range of at least 38 microns and less than 355 microns.

11. A soft magnetic material according to claim 10 wherein said metal magnetic particles (10) have a coercivity of no more than 1.2×10^2 A/m.

12. A soft magnetic material according to claim 10 wherein said metal

magnetic particles (10) have a particle diameter distribution that is essentially solely in a range of at least 75 microns and less than 355 microns.

13. A soft magnetic material according to claim 10 further comprising a plurality of compound magnetic particles (30) containing said metal magnetic particles (10) and insulation film (20) surrounding surfaces of said metal magnetic particles (10).

14. A dust core made using soft magnetic material according to claim 10 wherein coercivity is no more than 1.2×10^2 A/m.